CLEAN VERSION OF PENDING CLAIMS

1. (Amended) A therapeutic composition, comprising:

a) a polypeptide comprising a polypeptide which specifically binds CD38 or a portion thereof linked to a polypeptide which specifically binds DNA or a portion thereof, wherein the polypeptide which specifically binds CD38 is an antibody; and

b) a DNA sequence encoding a cytotoxic agent which is operably linked to a cell- or tissue-specific transcriptional unit.

3. (Amended) The composition of claim 1 wherein the antibody is obtained from an antibody secreted by hybridoma HB7.

4. The composition of claim 1 wherein the polypeptide which specifically binds DNA is protamine.

5. The composition of claim 1 wherein the cytotoxic agent is diphtheria toxin A chain, a cell suicide protein, Pseudomonas exotoxin, or an enzyme or protein that activates a chemotherapeutic agent.

6. The composition of claim 1 wherein the transcription unit is specific for B cells.

7. The composition of claim 1 wherein the transcription unit is specific for T cells.

8. The composition of claim 1 wherein the transcription unit is specific for myeloid cells.

9. (Amended) The composition of claim 1 wherein the antibody is a humanized antibody.

10. The composition of claim 1 further comprising a radioisotope linked to the fusion polypeptide.

11. (Amended) The composition of claim 9 wherein the antibody is a scFv antibody.

12. (Amended) An isolated and purified polypeptide comprising at least a portion of a polypeptide that specifically binds CD38 and at least a portion of a polypeptide that specifically binds DNA, wherein the polypeptide which specifically binds CD38 is an antibody.

13. A method to inhibit the growth of CD38+ cells, comprising contacting cells in vitro with an effective amount of the composition of claim 1.

15. A method to inhibit or treat multiple myeloma, primary amyloidosis, monoclonal gammopathy, or acute myeloid leukemia, comprising: administering to a mammal in need of said treatment an effective amount of the composition of claim 1.

17. A recombinantly produced single chain fusion polypeptide comprising:

a) the Fv region of the light and the heavy chain of a CD38 specific antibody; and

b) a DNA binding polypeptide, wherein the Fv region and the DNA binding polypeptide are recombinantly fused to form a single chain polypeptide that specifically binds CD38+ cells.

18. A pharmaceutical composition comprising a recombinantly produced single chain fusion polypeptide in a concentration sufficient to inhibit tumor cell growth, together with a pharmaceutically acceptable carrier wherein the fusion polypeptide comprises:

a) a single chain Fv region of an antibody, wherein the Fv region comprises the VH and VL regions of the antibody; and

b) a DNA binding polypeptide, wherein the Fv region and the DNA binding polypeptide are recombinantly fused to form a single molecule that specifically binds CD38+ cells.